

National Diabetes Information Clearinghouse

The Diabetes Dictionary



NATIONAL INSTITUTES OF HEALTH
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U.S. Department
of Health and
Human Services

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This dictionary defines words that are often used when people talk or write about diabetes. It is designed for people who have diabetes and for their families and friends.

The words are listed in alphabetical order. Some words have many meanings; only those meanings that relate to diabetes are included. Words that appear in ***bold italic*** are defined elsewhere in the dictionary. A term will refer the reader to another definition only when the second definition gives additional information about a topic that is directly related to the first term.

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acanthosis (uh-kan-THO-sis)

nigricans (NIH-grih-kans): a skin condition characterized by darkened skin patches; common in people whose body is not responding correctly to the *insulin* that they make in their *pancreas* (*insulin resistance*). This skin condition is also seen in people who have *pre-diabetes* or *type 2 diabetes*.

acarbose (AK-er-bose): an oral medicine used to treat *type 2 diabetes*. It blocks the *enzymes* that digest *starches* in food. The result is a slower and lower rise in *blood glucose* throughout the day, especially right after meals. Belongs to the class of medicines called alpha-glucosidase inhibitors. (Brand name: Precose.)

ACE inhibitor: an oral medicine that lowers *blood pressure*; ACE stands for angiotensin (an-gee-oh-TEN-sin) converting *enzyme*. For people with diabetes, especially those who have *protein* (albumin) in the *urine*, it also helps slow down *kidney* damage.

acesulfame (a-see-SUL-fame)

potassium (puh-TAS-ee-um): a dietary *sweetener* with no *calories* and no nutritional value. Also known as acesulfame-K. (Brand name: Sunett.)

acetohehexamide (a-see-toh-HEX-

uh-myde): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to the class of medicines called sulfonylureas. (Brand name: Dymelor.)

Actos: see *pioglitazone*.

acute: describes something that happens suddenly and for a short time. Opposite of *chronic*.

adhesive capsulitis (cap-soo-LITE-is): a condition of the shoulder associated with diabetes that results in pain and loss of the ability to move the shoulder in all directions.

adult-onset diabetes: former term for *type 2 diabetes*.

AGEs (A-G-EEZ): stands for advanced glycosylation (gly-KOH-sih-LAY-shun) endproducts. AGEs are produced in the body when *glucose* links with *protein*. They play a role in damaging blood vessels, which can lead to diabetes *complications*.

A

albuminuria (al-BYOO-mih-NOO-ree-uh): a condition in which the *urine* has more than normal amounts of a *protein* called albumin. Albuminuria may be a sign of *nephropathy* (*kidney* disease).

alpha (AL-fa) cell: a type of cell in the *pancreas*. Alpha cells make and release a *hormone* called *glucagon*. The body sends a signal to the alpha cells to make glucagon when *blood glucose* falls too low. Then glucagon reaches the *liver* where it tells it to release *glucose* into the blood for energy.

alpha-glucosidase (AL-fa-gloo-KOH-sih-days) inhibitor: a class of oral medicine for *type 2 diabetes* that blocks *enzymes* that digest *starches* in food. The result is a slower and lower rise in *blood glucose* throughout the day, especially right after meals. (Generic names: acarbose and miglitol.)

Amaryl: see *glimepiride*.

amylin (AM-ih-lin): a *hormone* formed by *beta cells* in the *pancreas*. Amylin regulates the timing of *glucose* release into the bloodstream after eating by slowing the emptying of the stomach.

amyotrophy (a-my-AH-truh-fee): a type of *neuropathy* resulting in pain, weakness, and/or wasting in the muscles.

anemia (uh-NEE-mee-uh): a condition in which the number of red blood cells is less than normal, resulting in less oxygen being carried to the body's cells.

angiopathy (an-gee-AH-puh-thee): any disease of the *blood vessels* (*veins, arteries, capillaries*) or lymphatic vessels.

antibodies (AN-ti-bod-eez): *proteins* made by the body to protect itself from “foreign” substances such as bacteria or viruses. People get *type 1 diabetes* when their bodies make antibodies that destroy the body's own *insulin*-making *beta cells*.



A1C: a test that measures a person's average **blood glucose level** over the past 2 to 3 months. Hemoglobin (HEE-mo-glo-bin) is the part of a red blood cell that carries oxygen to the cells and sometimes joins with the **glucose** in the bloodstream. Also called hemoglobin A1C or glycosylated (gly-KOH-sih-lay-*ted*) hemoglobin, the test shows the amount of glucose that sticks to the red blood cell, which is proportional to the amount of glucose in the blood.

ARB: an oral medicine that lowers **blood pressure**; ARB stands for angiotensin (an-gee-oh-TEN-sin) receptor blocker.

arteriosclerosis (ar-TEER-ee-oh-skluh-RO-sis): hardening of the **arteries**.

artery: a large **blood vessel** that carries blood with oxygen from the heart to all parts of the body.

aspart (ASS-part) insulin: a **rapid-acting insulin**. On average, aspart insulin starts to lower **blood glucose** within 10 to 20 minutes after **injection**. It has its strongest effect 1 to 3 hours after injection but keeps working for 3 to 5 hours after injection.

aspartame (ASS-per-tame): a dietary sweetener with almost no **calories** and no nutritional value. (Brand names: Equal, NutraSweet.)

atherosclerosis (ATH-uh-row-skluh-RO-sis): clogging, narrowing, and hardening of the body's large **arteries** and medium-sized **blood vessels**. Atherosclerosis can lead to **stroke**, heart attack, eye problems, and **kidney** problems.

autoimmune (AW-toh-ih-MYOON) disease: disorder of the body's **immune system** in which the immune system mistakenly attacks and destroys body tissue that it believes to be foreign.

autonomic (aw-toh-NOM-ik) neuropathy (ne-ROP-uh-thee): a type of **neuropathy** affecting the lungs, heart, stomach, intestines, bladder, or genitals.

Avandia: see **rosiglitazone**.

B

background retinopathy (REH-tih-NOP-uh-thee): a type of damage to the *retina* of the eye marked by bleeding, fluid accumulation, and abnormal dilation of the *blood vessels*. Background retinopathy is an early stage of *diabetic retinopathy*. Also called simple or nonproliferative (non-pro-LIF-er-uh-tiv) retinopathy.

basal rate: a steady trickle of low levels of longer-acting *insulin*, such as that used in *insulin pumps*.

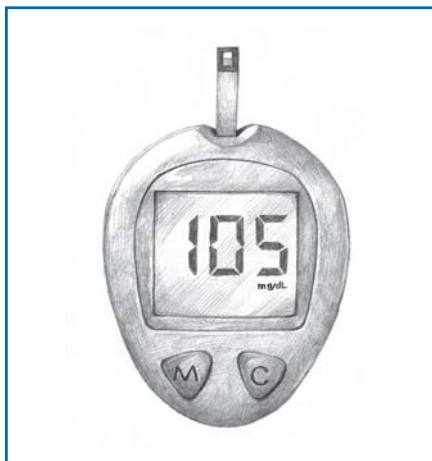
beta cell: a cell that makes *insulin*. Beta cells are located in the *islets* of the *pancreas*.

biguanide (by-GWAH-nide): a class of oral medicine used to treat *type 2 diabetes* that lowers *blood glucose* by reducing the amount of *glucose* produced by the *liver* and by helping the body respond better to *insulin*. (Generic name: metformin.)

blood glucose: the main *sugar* found in the blood and the body's main source of energy. Also called blood sugar.

blood glucose level: the amount of *glucose* in a given amount of blood. It is noted in milligrams in a deciliter, or *mg/dL*.

blood glucose meter: a small, portable machine used by people with diabetes to check their *blood glucose levels*. After pricking the skin with a *lancet*, one places a drop of blood on a test strip in the machine. The meter (or monitor) soon displays the blood glucose level as a number on the meter's digital display.



Blood glucose meter

blood glucose monitoring: checking *blood glucose level* on a regular basis in order to manage diabetes. A *blood glucose meter* (or blood glucose test strips that change color when touched by a blood sample) is needed for frequent blood glucose monitoring.

blood pressure: the force of blood exerted on the inside walls of **blood vessels**. Blood pressure is expressed as a ratio (example: 120/80, read as “120 over 80”). The first number is the systolic (sis-TAH-lik) pressure, or the pressure when the heart pushes blood out into the **arteries**. The second number is the diastolic (DY-uh-STAH-lik) pressure, or the pressure when the heart rests.

blood sugar: see **blood glucose**.

blood sugar level: see **blood glucose level**.

blood urea (yoo-REE-uh) nitrogen (NY-truh-jen) (BUN): a waste product in the blood from the breakdown of **protein**. The **kidneys** filter blood to remove **urea**. As kidney function decreases, the BUN levels increase.

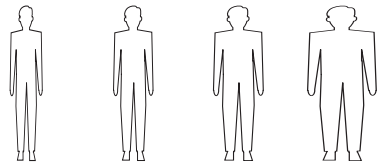
blood vessels: tubes that carry blood to and from all parts of the body. The three main types of blood vessels are **arteries**, **veins**, and **capillaries**.

BMI: see **body mass index**.

body mass index (BMI): a measure used to evaluate body weight relative to a person’s height.

BMI is used to find out if a person is underweight, normal weight, overweight, or obese.

To find BMI: Multiply body weight in pounds by 703. Divide that number by height in inches. Divide that number by height in inches again. Find the resulting number in the chart below.



Below 18.5	18.5–24.9	25.0–29.9	30.0 and above
Underweight	Normal weight	Overweight	Obese

bolus (BOH-lus): an extra amount of **insulin** taken to cover an expected rise in **blood glucose**, often related to a meal or snack.

borderline diabetes: a former term for **type 2 diabetes** or **impaired glucose tolerance**.

brittle diabetes: a term used when a person’s **blood glucose level** moves often from low to high and from high to low.

BUN: see **blood urea nitrogen**.

bunion (BUN-yun): a bulge on the first joint of the big toe, caused by the swelling of a fluid sac under the skin. This spot can become red, sore, and infected.

C

callus: a small area of skin, usually on the foot, that has become thick and hard from rubbing or pressure.

calorie: a unit representing the energy provided by food. *Carbohydrate, protein, fat,* and alcohol provide calories in the diet. Carbohydrate and protein have 4 calories per gram, fat has 9 calories per gram, and alcohol has 7 calories per gram.

capillary (KAP-ih-lair-ee): the smallest of the body's *blood vessels*. Oxygen and *glucose* pass through capillary walls and enter the cells. Waste products such as carbon dioxide pass back from the cells into the blood through capillaries.

capsaicin (kap-SAY-ih-sin): an ingredient in hot peppers that can be found in ointment form for use on the skin to relieve pain from diabetic *neuropathy*.

carbohydrate (kar-boh-HY-drate): one of the three main nutrients in food. Foods that provide carbohydrate are *starches*, vegetables, fruits, dairy products, and *sugars*.



Sources of carbohydrate

carbohydrate counting: a method of meal planning for people with diabetes based on counting the number of *grams* of *carbohydrate* in food.

cardiologist (kar-dee-AH-luh-jist): a doctor who treats people who have heart problems.

cardiovascular (KAR-dee-oh-VASK-yoo-ler) disease: disease of the heart and *blood vessels* (*arteries, veins, and capillaries*).

cataract (KA-ter-act): clouding of the lens of the eye.

CDE: see *certified diabetes educator*.

cerebrovascular (seh-REE-broh-VASK-yoo-ler) disease: damage to *blood vessels* in the brain. Vessels can burst and bleed or become clogged with fatty deposits. When blood flow is interrupted, brain cells die or are damaged, resulting in a *stroke*.

certified diabetes educator (CDE): a health care professional with expertise in diabetes education who has met eligibility requirements and successfully completed a certification exam. See *diabetes educator*.

Charcot's (shar-KOHZ) foot: a condition in which the joints and soft tissue in the foot are destroyed; it results from damage to the nerves.

cheiroarthropathy (KY-roh-ar-THRAHP-uh-thee): see *limited joint mobility*.

cheiropathy (ky-RAH-puh-thee): see *limited joint mobility*.

chlorpropamide (klor-PROH-pah-mide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose levels* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to

the class of medicines called sulfonylureas. (Brand name: Diabinese.)

cholesterol (koh-LES-ter-all): a type of *fat* produced by the *liver* and found in the blood; it is also found in some foods. Cholesterol is used by the body to make *hormones* and build cell walls.

chronic: describes something that is long-lasting. Opposite of *acute*.

circulation: the flow of blood through the body's *blood vessels* and heart.

coma: a sleep-like state in which a person is not conscious. May be caused by *hyperglycemia* (high *blood glucose*) or *hypoglycemia* (low blood glucose) in people with diabetes.

combination oral medicines: a pill that includes two or more different medicines. See *Glucovance*.

combination therapy: the use of different medicines together (*oral hypoglycemic agents* or an oral hypoglycemic agent and *insulin*) to manage the *blood glucose levels* of people with *type 2 diabetes*.

C

complications: harmful effects of diabetes such as damage to the eyes, heart, *blood vessels*, nervous system, teeth and gums, feet and skin, or *kidneys*. Studies show that keeping *blood glucose*, *blood pressure*, and *low-density lipoprotein cholesterol* levels close to normal can help prevent or delay these problems.

congenital (kun-JEN-ih-tul)

defects: problems or conditions that are present at birth.

congestive heart failure: loss of the heart's pumping power, which causes fluids to collect in the body, especially in the feet and lungs.

conventional therapy: a term used in clinical trials where one group receives treatment for diabetes in which *A1C* and *blood glucose levels* are kept at levels based on current practice guidelines. However, the goal is not to keep blood glucose levels as close to normal as possible, as is done in *intensive therapy*. Conventional therapy includes use of medication, meal planning, and exercise, along with regular visits to health care providers.

coronary artery disease: see *coronary heart disease*.

coronary (KOR-uh-ner-ee) heart disease: heart disease caused by narrowing of the *arteries* that supply blood to the heart. If the blood supply is cut off the result is a heart attack.

C-peptide (see-peptide): "Connecting peptide," a substance the *pancreas* releases into the bloodstream in equal amounts to insulin. A test of C-peptide levels shows how much *insulin* the body is making.

creatinine (kree-AT-ih-nin): a waste product from *protein* in the diet and from the muscles of the body. Creatinine is removed from the body by the *kidneys*; as kidney disease progresses, the level of creatinine in the blood increases.

D

dawn phenomenon (feh-NAH-meh-nun): the early-morning (4 a.m. to 8 a.m.) rise in *blood glucose level*.

DCCT: see *Diabetes Control and Complications Trial*.

dehydration (dee-hy-DRAY-shun): the loss of too much body fluid through frequent urinating, sweating, diarrhea, or vomiting.

dermopathy (dur-MAH-puh-thee): disease of the skin.

desensitization (dee-sens-ih-tiz-A-shun): a way to reduce or stop a response such as an allergic reaction to something. For example, if someone has an allergic reaction to something, the doctor gives the person a very small amount of the substance at first to increase one's tolerance. Over a period of time, larger doses are given until the person is taking the full dose. This is one way to help the body get used to the full dose and to prevent the allergic reaction.

dextrose (DECKS-trohss), also called **glucose:** simple *sugar* found in blood that serves as the body's main source of energy.

DiaBeta: see *glyburide*.

diabetes: see *diabetes mellitus*.

Diabetes Control and Complications Trial (DCCT): a study by the National Institute of Diabetes and Digestive and Kidney Diseases, conducted from 1983 to 1993 in people with *type 1 diabetes*. The study showed that *intensive therapy* compared to *conventional therapy* significantly helped prevent or delay diabetes *complications*. Intensive therapy included multiple daily *insulin injections* or the use of an *insulin pump* with multiple *blood glucose* readings each day. Complications followed in the study included *diabetic retinopathy*, *neuropathy*, and *nephropathy*.

diabetes educator: a health care professional who teaches people who have diabetes how to manage their diabetes. Some diabetes educators are *certified diabetes educators* (CDEs). Diabetes educators are found in hospitals, physician offices, managed care organizations, home health care, and other settings.

D

diabetes insipidus (in-SIP-ih-dus):

a condition characterized by frequent and heavy urination, excessive thirst, and an overall feeling of weakness. This condition may be caused by a defect in the pituitary gland or in the *kidney*. In diabetes insipidus, *blood glucose levels* are normal.

diabetes mellitus (MELL-ih-tus):

a condition characterized by *hyperglycemia* resulting from the body's inability to use *blood glucose* for energy. In *type 1 diabetes*, the *pancreas* no longer makes *insulin* and therefore blood glucose cannot enter the cells to be used for energy. In *type 2 diabetes*, either the pancreas does not make enough insulin or the body is unable to use insulin correctly.

Diabetes Prevention Program

(DPP): a study by the National Institute of Diabetes and Digestive and Kidney Diseases conducted from 1998 to 2001 in people at high risk for *type 2 diabetes*. All study participants had *impaired glucose tolerance*, also called *pre-diabetes*, and were *overweight*. The study showed that people who lost 5 to 7 percent of their body weight through a low-fat, low-calorie diet and moderate exercise

(usually walking for 30 minutes 5 days a week) reduced their risk of getting type 2 diabetes by 58 percent. Participants who received treatment with the oral diabetes drug *metformin* reduced their risk of getting type 2 diabetes by 31 percent.

diabetic diarrhea (dy-uh-REE-uh):

loose stools, fecal incontinence, or both that result from an overgrowth of bacteria in the small intestine and diabetic *neuropathy* in the intestines. This nerve damage can also result in constipation.

diabetic eye disease: see *diabetic retinopathy*.

diabetic ketoacidosis (KEY-toe-ass-ih-DOH-sis) (DKA): an emergency condition in which extremely high *blood glucose levels*, along with a severe lack of *insulin*, result in the breakdown of body *fat* for energy and an accumulation of *ketones* in the blood and *urine*. Signs of DKA are nausea and vomiting, stomach pain, fruity breath odor, and rapid breathing. Untreated DKA can lead to *coma* and death.

diabetic myelopathy (my-eh-LAH-puh-thee): damage to the spinal cord found in some people with diabetes.

D

diabetic nephropathy: see *nephropathy*.

diabetic neuropathy: see *neuropathy*.

diabetic retinopathy (REH-tih-NOP-uh-thee): diabetic eye disease; damage to the small *blood vessels* in the *retina*. Loss of vision may result.

diabetogenic (DY-uh-beh-toh-JEN-ic): causing *diabetes*. For example, some drugs cause *blood glucose levels* to rise, resulting in diabetes.

diabetologist (DY-uh-beh-TAH-luh-jist): a doctor who specializes in treating people who have diabetes.

Diabinese: see *chlorpropamide*.

diagnosis (DY-ug-NO-sis): the determination of a disease from its signs and symptoms.

dialysis (dy-AL-ih-sis): the process of cleaning wastes from the blood artificially. This job is normally done by the *kidneys*. If the kidneys fail, the blood must be cleaned artificially with special equipment. The two major forms of dialysis are hemodialysis and peritoneal dialysis.

- **hemodialysis (HE-mo-dy-AL-ih-sis):** the use of a machine to clean wastes from the blood after the kidneys have failed. The blood travels through tubes to a dialyzer (DY-uh-LY-zur), a machine that removes wastes and extra fluid. The cleaned blood then goes back into the body.



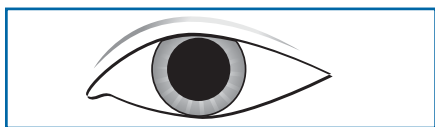
Hemodialysis

- **peritoneal (PEH-rih-tuh-NEE-ul) dialysis:** cleaning the blood by using the lining of the abdomen as a filter. A cleansing solution called dialysate (dy-AL-ih-sate) is infused from a bag into the abdomen. Fluids and wastes flow through the lining of the belly and remain “trapped” in the dialysate. The dialysate is then drained from the belly, removing the extra fluids and wastes from the body.

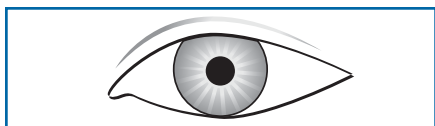
D

dietitian (DY-eh-TIH-shun): a health care professional who advises people about meal planning, weight control, and diabetes management. A registered dietitian (RD) has more training.

dilated (DY-lay-ted) eye exam: a test done by an eye care specialist in which the pupil (the black center) of the eye is temporarily enlarged with eyedrops to allow the specialist to see the inside of the eye more easily.



Dilated eye



Undilated eye

DKA: see *diabetic ketoacidosis*.

D-phenylalanine (dee-fen-nel-AL-ah-neen) derivative: a class of oral medicine for **type 2 diabetes** that lowers *blood glucose levels* by helping the *pancreas* make more *insulin* right after meals. (Generic name: nateglinide.)

DPP: see *Diabetes Prevention Program*.

Dupuytren's (doo-PWEE-trenz) contracture (kon-TRACK-chur): a condition associated with diabetes in which the fingers and the palm of the hand thicken and shorten, causing the fingers to curve inward.

Dymelor: see *acetohexamide*.

E

edema (eh-DEE-muh): swelling caused by excess fluid in the body.

electromyography (ee-LEK-troh-my-AH-gruh-fee) (EMG): a test used to detect nerve function. It measures the electrical activity generated by muscles.

EMG: see *electromyography*.

endocrine (EN-doh-krin) gland: a group of specialized cells that release *hormones* into the blood. For example, the *islets* in the *pancreas*, which secrete *insulin*, are endocrine glands.

endocrinologist (EN-doh-krih-NAH-luh-jist): a doctor who treats people who have *endocrine gland* problems such as diabetes.

end-stage renal disease (ESRD): see *kidney failure*.

enzyme (EN-zime): *protein* made by the body that brings about a chemical reaction, for example, the enzymes produced by the gut to aid digestion.

erectile dysfunction: see *impotence*.

euglycemia (you-gly-SEEM-ee-uh): a normal level of *glucose* in the blood.

exchange lists: one of several approaches for diabetes meal planning. Foods are categorized into three groups based on their nutritional content. Lists provide the serving sizes for *carbohydrates*, meat and meat alternatives, and *fats*. These lists allow for substitution for different groups to keep the nutritional content fixed.

F

fasting blood glucose test: a check of a person's *blood glucose level* after the person has not eaten for 8 to 12 hours (usually overnight). This test is used to diagnose *pre-diabetes* and diabetes. It is also used to monitor people with diabetes.

fat: 1. One of the three main nutrients in food. Foods that provide fat are butter, margarine, salad dressing, oil, nuts, meat, poultry, fish, and some dairy products. 2. Excess *calories* are stored as body fat, providing the body with a reserve supply of energy and other functions.



Sources of fat

50/50 insulin: *premixed insulin* that is 50 percent *intermediate-acting (NPH) insulin* and 50 percent *short-acting (regular) insulin*.

fluorescein (fluh-RESS-ee-in) angiography (an-gee-AH-grah-fee): a test to examine *blood vessels* in the eye; done by injecting dye into an arm *vein* and then taking photos as the dye goes through the eye's blood vessels.

fructosamine (frook-TOH-sah-meen) test: measures the number of *blood glucose* molecules (MAH-leh-kyools) linked to *protein* molecules in the blood. The test provides information on the average *blood glucose level* for the past 3 weeks.

fructose (FROOK-tohss): a *sugar* that occurs naturally in fruits and honey. Fructose has 4 *calories* per *gram*.

gangrene (GANG-green): the death of body tissue, most often caused by a lack of blood flow and infection. It can lead to amputation.

gastroparesis (gas-tro-puh-REE-sis): a form of *neuropathy* that affects the stomach. Digestion of food may be incomplete or delayed, resulting in nausea, vomiting, or bloating, making *blood glucose* control difficult.

gestational (jes-TAY-shun-ul) diabetes mellitus (MELL-ih-tus) (GDM): a type of *diabetes mellitus* that develops only during pregnancy and usually disappears upon delivery, but increases the risk that the mother will develop diabetes later. GDM is managed with meal planning, activity, and, in some cases, *insulin*.

gingivitis (JIN-jih-VY-tis): a condition of the gums characterized by inflammation and bleeding.

gland: a group of cells that secrete substances. Endocrine glands secrete *hormones*. Exocrine glands secrete salt, *enzymes*, and water.

glargine (GLAR-jeen) insulin: *very-long-acting insulin*. On average, glargine insulin starts to lower *blood glucose levels* within 1 hour after *injection* and keeps working evenly for 24 hours after injection.

glaucoma (glaw-KOH-muh): an increase in fluid pressure inside the eye that may lead to loss of vision.

glimepiride (gly-MEH-per-ide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to the class of medicines called sulfonylureas. (Brand name: Amaryl.)

glipizide (GLIH-pih-zide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to the class of medicines called sulfonylureas. (Brand names: Glucotrol, Glucotrol XL.)

glomerular (glo-MEHR-yoo-lur) filtration rate: measure of the *kidney's* ability to filter and remove waste products.

G

glomeruli (glo-MEHR-yoo-lie):
plural of *glomerulus*.

glomerulus (glo-MEHR-yoo-lus):
a tiny set of looping *blood vessels* in the *kidney* where the blood is filtered and waste products are removed.

glucagon (GLOO-kah-gahn): a *hormone* produced by the *alpha cells* in the *pancreas*. It raises *blood glucose*. An injectable form of glucagon, available by prescription, may be used to treat severe *hypoglycemia*.

Glucophage, Glucophage XR: see *metformin*.

glucose: one of the simplest forms of *sugar*.

glucose tablets: chewable tablets made of pure *glucose* used for treating *hypoglycemia*.



Glucose tablets

glucose tolerance test: see *oral glucose tolerance test*.

Glucotrol, Glucotrol XL: see *glipizide*.

Glucovance: an oral medicine used to treat *type 2 diabetes*. It is a combination of *glyburide* and *metformin*.

glyburide (GLY-buh-ride): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to the class of medicines called sulfonylureas. (Brand names: DiaBeta, Glynase PresTab, Micronase; ingredient in Glucovance.)

glycemic (gly-SEE-mik) index:
a ranking of *carbohydrate*-containing foods, based on the food's effect on *blood glucose* compared with a standard reference food.

glycogen (GLY-koh-jen): the form of *glucose* found in the *liver* and muscles.

glycosuria (gly-koh-SOOR-ee-ah):
the presence of *glucose* in the *urine*.

glycosylated hemoglobin: see *A1C*.

Glynase PresTab: see *glyburide*.

Glyset: see *miglitol*.

gram: a unit of weight in the metric system. An ounce equals 28 grams. In some *meal plans* for people with diabetes, the suggested amounts of food are given in grams.



One slice of bread has 15 grams of carbohydrate.

HDL cholesterol (kuh-LESS-tuh-rawl), stands for high-density lipoprotein (LIP-oh-PRO-teen) cholesterol: a *fat* found in the blood that takes extra *cholesterol* from the blood to the *liver* for removal. Sometimes called “good” cholesterol.

hemodialysis: see *dialysis*.

hemoglobin A1C test: see *A1C*.

heredity: the passing of a trait from parent to child.

HHNS: see *hyperosmolar hyperglycemic nonketotic syndrome*.

high blood glucose: see *hyperglycemia*.

high blood pressure: see *hypertension*.

high-density lipoprotein cholesterol: see *HDL cholesterol*.

HLA: see *human leukocyte antigens*.

home glucose monitor: see *blood glucose meter*.

honeymoon phase: temporary remission of *hyperglycemia* that occurs in some people newly diagnosed with *type 1 diabetes*, when some *insulin* secretion resumes for a short time, usually a few months, before stopping again.

H

hormone: a chemical produced in one part of the body and released into the blood to trigger or regulate particular functions of the body. For example, *insulin* is a hormone made in the *pancreas* that tells other cells when to use *glucose* for energy. Synthetic hormones, made for use as medicines, can be the same or different from those made in the body.

human leukocyte antigens (HLA): *proteins* located on the surface of the cell that help the *immune system* identify the cell either as one belonging to the body or as one from outside the body. Some patterns of these proteins may mean increased risk of developing *type 1 diabetes*.

hyperglycemia (HY-per-gly-SEE-mee-uh): excessive *blood glucose*. Fasting hyperglycemia is blood glucose above a desirable level after a person has fasted for at least 8 hours. Postprandial hyperglycemia is blood glucose above a desirable level 1 to 2 hours after a person has eaten.

hyperinsulinemia (HY-per-IN-suh-lih-NEE-mee-uh): a condition in which the level of *insulin* in the blood is higher than normal. Caused by overproduction of insulin by the body. Related to *insulin resistance*.

hyperlipidemia (HY-per-li-pih-DEE-mee-uh): higher than normal *fat* and *cholesterol* levels in the blood.

hyperosmolar (HY-per-oz-MOH-lur) hyperglycemic (HY-per-gly-SEE-mik) nonketotic (non-kee-TAH-tik) syndrome (HHNS): an emergency condition in which one's *blood glucose level* is very high and *ketones* are not present in the blood or *urine*. If HHNS is not treated, it can lead to *coma* or death.

hypertension (HY-per-TEN-shun): a condition present when blood flows through the *blood vessels* with a force greater than normal. Also called high *blood pressure*. Hypertension can strain the heart, damage blood vessels, and increase the risk of



Checking blood pressure

heart attack, *stroke*, *kidney* problems, and death.

hypoglycemia (hy-po-gly-SEE-mee-uh): a condition that occurs when one's *blood glucose* is lower than normal, usually less than 70 *mg/dL*. Signs include hunger, nervousness, shakiness, perspiration, dizziness or light-headedness, sleepiness, and confusion. If left untreated, hypoglycemia may lead to unconsciousness. Hypoglycemia is treated by consuming a *carbohydrate*-rich food such as a *glucose tablet* or juice. It may also be treated with an *injection* of *glucagon* if the person is unconscious or unable to swallow. Also called an *insulin reaction*.

hypoglycemia unawareness (un-uh-WARE-ness): a state in which a person does not feel or recognize the symptoms of *hypoglycemia*. People who have frequent episodes of hypoglycemia may no longer experience the warning signs of it.

hypotension (hy-poh-TEN-shun): low *blood pressure* or a sudden drop in blood pressure. Hypotension may occur when a person rises quickly from a sitting or reclining position, causing dizziness or fainting.

IDDM (insulin-dependent diabetes mellitus): former term for *type 1 diabetes*.

immune (ih-MYOON) system: the body's system for protecting itself from viruses and bacteria or any "foreign" substances.

immunosuppressant (ih-MYOON-oh-suh-PRESS-unt): a drug that suppresses the natural immune responses. Immunosuppressants are given to transplant patients to prevent organ rejection or to patients with *autoimmune diseases*.

impaired fasting glucose (IFG): a condition in which a *blood glucose* test, taken after an 8- to 12-hour fast, shows a level of glucose higher than normal but not high enough for a diagnosis of *diabetes*. IFG, also called *pre-diabetes*, is a level of 100 mg/dL to 125 mg/dL. Most people with pre-diabetes are at increased risk for developing type 2 diabetes.

I

impaired glucose tolerance (IGT): a condition in which *blood glucose levels* are higher than normal but are not high enough for a diagnosis of diabetes. IGT, also called *pre-diabetes*, is a level of 140 *mg/dL* to 199 *mg/dL* 2 hours after the start of an *oral glucose tolerance test*. Most people with pre-diabetes are at increased risk for developing *type 2 diabetes*. Other names for IGT that are no longer used are “borderline,” “subclinical,” “chemical,” or “latent” diabetes.

implantable (im-PLAN-tuh-bull) insulin pump: a small pump placed inside the body to deliver *insulin* in response to remote-control commands from the user.

impotence (IM-po-tents): the inability to get or maintain an erection for sexual activity. Also called erectile (ee-REK-tile) dysfunction (dis-FUNK-shun).

incidence (IN-sih-dints): a measure of how often a disease occurs; the number of new cases of a disease among a certain group of people for a certain period of time.

incontinence (in-KON-tih-nents): loss of bladder or bowel control; the accidental loss of *urine* or feces.

inhaled insulin: an experimental treatment for taking *insulin* using a portable device that allows a person to breathe in insulin.

injection (in-JEK-shun): inserting liquid medication or nutrients into the body with a *syringe*. A person with diabetes may use short needles or pinch the skin and inject at an angle to avoid an *intramuscular* injection of *insulin*.

injection site rotation: changing the places on the body where *insulin* is injected. Rotation prevents the formation of *lipodystrophies*.

injection sites: places on the body where *insulin* is usually injected.

insulin: a *hormone* that helps the body use *glucose* for energy. The *beta cells* of the *pancreas* make insulin. When the body cannot make enough insulin, insulin is taken by *injection* or through use of an *insulin pump*.

insulin adjustment: a change in the amount of insulin a person with diabetes takes based on factors such as meal planning, activity, and *blood glucose levels*.

insulin-dependent diabetes mellitus (IDDM): former term for *type 1 diabetes*.

insulinoma (IN-suh-lih-NOH-mah): a tumor of the *beta cells* in the *pancreas*. An insulinoma may cause the body to make extra *insulin*, leading to *hypoglycemia*.

insulin pen: a device for injecting insulin that looks like a fountain pen and holds replaceable cartridges of insulin. Also available in disposable form.

insulin pump: an insulin-delivering device about the size of a deck of cards that can be worn on a belt or kept in a pocket. An insulin pump connects to narrow, flexible plastic tubing that ends with a needle inserted just under the skin. Users set the pump to give a steady trickle or *basal* amount of insulin continuously throughout the



Insulin pump

day. Pumps release *bolus* doses of insulin (several units at a time) at meals and at times when *blood glucose* is too high, based on programming done by the user.

insulin reaction: when the level of *glucose* in the blood is too low (at or below 70 *mg/dL*). Also known as *hypoglycemia*.

insulin receptors: areas on the outer part of a cell that allow the cell to bind with insulin in the blood. When the cell and insulin bind, the cell can take *glucose* from the blood and use it for energy.

insulin resistance: the body's inability to respond to and use the insulin it produces. Insulin resistance may be linked to *obesity*, *hypertension*, and high levels of *fat* in the blood.

insulin shock: see *hypoglycemia*.

intensive therapy: a treatment for diabetes in which *blood glucose* is kept as close to normal as possible through frequent *injections* or use of an *insulin pump*; meal planning; adjustment of medicines; and exercise based on blood glucose test results and frequent contact with a person's health care team.

I

intermediate-acting insulin: a type of insulin that starts to lower *blood glucose* within 1 to 2 hours after *injection* and has its strongest effect 6 to 12 hours after injection, depending on the type used. See *lente insulin* and *NPH insulin*.

intermittent (IN-ter-MIT-ent) claudication (CLAW-dih-KAY-shun): pain that comes and goes in the muscles of the leg. This pain results from a lack of blood supply to the legs and usually happens when walking or exercising.

intramuscular (in-trah-MUS-kyoo-lar) injection: inserting liquid medication into a muscle with a *syringe*. *Glucagon* may be given by *subcutaneous* or intramuscular injection for *hypoglycemia*.

islet (EYE-let) cell autoantibodies (aw-toe-AN-ti-bod-eez) (ICA): proteins found in the blood of people newly diagnosed with *type 1 diabetes*. They are also found in people who may be developing type 1 diabetes. The presence of ICA indicates that the body's *immune system* has been damaging *beta cells* in the *pancreas*.

islet transplantation: moving the *islets* from a donor *pancreas* into a person whose pancreas has stopped producing *insulin*. *Beta cells* in the islets make the insulin that the body needs for using *blood glucose*.

islets: groups of cells located in the *pancreas* that make *hormones* that help the body break down and use food. For example, *alpha cells* make *glucagon* and *beta cells* make *insulin*. Also called islets of Langerhans (LANG-er-hahns).

islets of Langerhans: see *islets*.

J-K

jet injector (in-JEK-tur): a device that uses high pressure instead of a needle to propel *insulin* through the skin and into the body.

juvenile diabetes: former term for insulin-dependent diabetes mellitus (IDDM), or *type 1 diabetes*.

ketoacidosis: see *diabetic ketoacidosis*.

ketone: a chemical produced when there is a shortage of *insulin* in the blood and the body breaks down body *fat* for energy. High levels of ketones can lead to *diabetic ketoacidosis* and *coma*. Sometimes referred to as ketone bodies.

ketonuria (key-toe-NUH-ree-ah): a condition occurring when *ketones* are present in the *urine*, a warning sign of *diabetic ketoacidosis*.

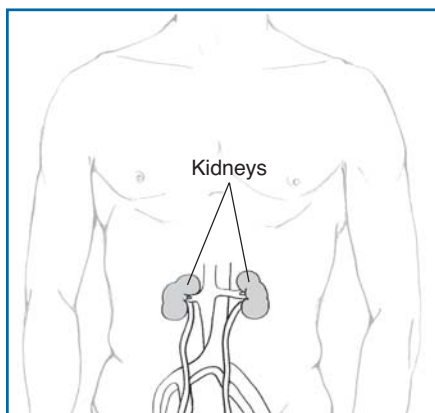
ketosis (ke-TOE-sis): a *ketone* buildup in the body that may lead to *diabetic ketoacidosis*. Signs of ketosis are nausea, vomiting, and stomach pain.

kidney disease: see *nephropathy*.

kidney failure: a *chronic* condition in which the body retains fluid and harmful wastes build up because the *kidneys* no longer work properly. A person with kidney failure needs *dialysis* or a kidney transplant. Also called end-stage renal (REE-nul) disease or ESRD.

K-L

kidneys: the two bean-shaped organs that filter wastes from the blood and form *urine*. The kidneys are located near the middle of the back. They send urine to the bladder.



Kidneys

Kussmaul (KOOS-mall) breathing: the rapid, deep, and labored breathing of people who have *diabetic ketoacidosis*.

LADA: see *latent autoimmune diabetes in adults*.

lancet: a spring-loaded device used to prick the skin with a small needle to obtain a drop of blood for *blood glucose monitoring*.

laser surgery treatment: a type of therapy that uses a strong beam of light to treat a damaged area. The beam of light is called a laser. A laser is sometimes used to seal blood vessels in the eye of a person with diabetes. See *photocoagulation*.

latent autoimmune diabetes in adults (LADA): a condition in which *type 1 diabetes* develops in adults.

LDL cholesterol: see *low-density lipoprotein cholesterol*.

lente (LEN-tay) insulin: an *intermediate-acting insulin*. On average, lente insulin starts to lower *blood glucose levels* within 1 to 2 hours after *injection*. It has its strongest effect 8 to 12 hours after injection but keeps working for 18 to 24 hours after injection. Also called L insulin.

limited joint mobility: a condition in which the joints swell and the skin of the hand becomes thick,

tight, and waxy, making the joints less able to move. It may affect the fingers and arms as well as other joints in the body.

lipid (LIP-id): a term for *fat* in the body. Lipids can be broken down by the body and used for energy.

lipid profile: a blood test that measures total *cholesterol*, *triglycerides*, and *HDL cholesterol*. *LDL cholesterol* is then calculated from the results. A lipid profile is one measure of a person's risk of *cardiovascular disease*.

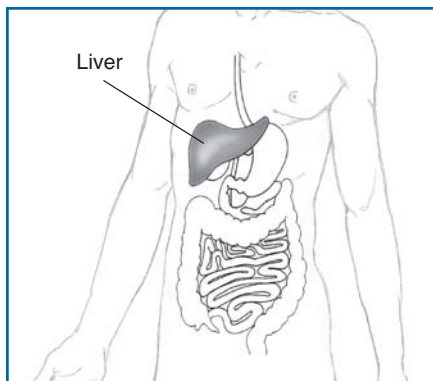
lipoatrophy (LIP-oh-AT-ruh-fee): loss of fat under the skin resulting in small dents. Lipoatrophy may be caused by repeated *injections* of *insulin* in the same spot.

lipodystrophy (LIP-oh-DIH-struh-fee): defect in the breaking down or building up of fat below the surface of the skin, resulting in lumps or small dents in the skin surface. (See *lipohypertrophy* or *lipoatrophy*.) Lipodystrophy may be caused by repeated *injections* of *insulin* in the same spot.

lipohypertrophy (LIP-oh-hy-PER-truh-fee): buildup of fat below the surface of the skin, causing lumps. Lipohypertrophy may be caused by repeated *injections* of *insulin* in the same spot.

lispro (LYZ-proh) insulin: a *rapid-acting insulin*. On average, lispro insulin starts to lower *blood glucose* within 5 minutes after *injection*. It has its strongest effect 30 minutes to 1 hour after injection but keeps working for 3 hours after injection.

liver: an organ in the body that changes food into energy, removes alcohol and poisons from the blood, and makes bile, a substance that breaks down *fats* and helps rid the body of wastes.



Liver

L-M

long-acting insulin: a type of insulin that starts to lower *blood glucose* within 4 to 6 hours after *injection* and has its strongest effect 10 to 18 hours after injection. See *ultralente insulin*.

low blood sugar: see *hypoglycemia*.

low-density lipoprotein (LDL) cholesterol (kuh-LESS-tuh-rawl): a *fat* found in the blood that takes *cholesterol* around the body to where it is needed for cell repair and also deposits it on the inside of *artery* walls. Sometimes called “bad” cholesterol.

macrosomia (mack-roh-SOH-mee-ah): abnormally large; in diabetes, refers to abnormally large babies that may be born to women with diabetes.



Macrosomia

macrovascular (mack-roh-VASK-yoo-ler) **disease:** disease of the large *blood vessels*, such as those found in the heart. *Lipids* and blood clots build up in the large blood vessels and can cause *atherosclerosis*, *coronary heart disease*, *stroke*, and *peripheral vascular disease*.

macula (MACK-yoo-la): the part of the *retina* in the eye used for reading and seeing fine detail.

macular (MACK-yoo-lur) **edema** (eh-DEE-mah): swelling of the *macula*.

maturity-onset diabetes of the

young (MODY): a kind of *type 2 diabetes* that accounts for 1 to 5 percent of people with diabetes. Of the six forms identified, each is caused by a defect in a single gene.

meglitinide (meh-GLIH-tin-ide): a class of oral medicine for *type 2 diabetes* that lowers *blood glucose* by helping the *pancreas* make more *insulin* right after meals. (Generic name: repaglinide.)

metabolic syndrome: the tendency of several conditions to occur together, including *obesity*, *insulin resistance*, *diabetes* or *pre-diabetes*, *hypertension*, and high *lipids*.

metabolism: the term for the way cells chemically change food so that it can be used to store or use energy and make the *proteins*, *fats*, and *sugars* needed by the body.

metformin (met-FOR-min): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by reducing the amount of *glucose* produced by the *liver* and helping the body respond better to the *insulin* made in the *pancreas*. Belongs to the class

of medicines called biguanides. (Brand names: Glucophage, Glucophage XR; an ingredient in Glucovance.)

mg/dL: milligrams (MILL-ih-grams) per deciliter (DESS-ih-lee-tur), a unit of measure that shows the concentration of a substance in a specific amount of fluid. In the United States, *blood glucose* test results are reported as mg/dL. Medical journals and other countries use millimoles per liter (*mmol/L*). To convert to mg/dL from mmol/L, multiply mmol/L by 18. Example: $10 \text{ mmol/L} \times 18 = 180 \text{ mg/dL}$.

microalbumin (MY-kro-al-BYOO-min): small amounts of the *protein* called albumin in the *urine* detectable with a special lab test.

microaneurysm (MY-kro-AN-yeh-rizm): a small swelling that forms on the side of tiny *blood vessels*. These small swellings may break and allow blood to leak into nearby tissue. People with diabetes may get microaneurysms in the *retina* of the eye.

M

Micronase: see *glyburide*.

microvascular (MY-kro-VASK-yoo-ler) disease: disease of the smallest *blood vessels*, such as those found in the eyes, nerves, and *kidneys*. The walls of the vessels become abnormally thick but weak. Then they bleed, leak *protein*, and slow the flow of blood to the cells.

miglitol (MIG-lih-tall): an oral medicine used to treat *type 2 diabetes*. It blocks the *enzymes* that digest *starches* in food. The result is a slower and lower rise in *blood glucose* throughout the day, especially right after meals. Belongs to the class of medicines called alpha-glucosidase inhibitors. (Brand name: Glyset.)

mixed dose: a combination of two types of *insulin* in one *injection*. Usually a *rapid-* or *short-acting insulin* is combined with a longer acting insulin (such as *NPH insulin*) to provide both short-term and long-term control of *blood glucose levels*.

mmol/L: millimoles per liter, a unit of measure that shows the concentration of a substance in a specific amount of fluid. In most of the world, except for the United States, *blood glucose* test results are reported as mmol/L. In the United States, milligrams per deciliter (*mg/dL*) is used. To convert to mmol/L from mg/dL, divide mg/dL by 18. Example: $180 \text{ mg/dL} \div 18 = 10 \text{ mmol/L}$.

MODY: see *maturity-onset diabetes of the young*.

monitor: see *blood glucose meter*.

monofilament: a short piece of nylon, like a hairbrush bristle, mounted on a wand. To check sensitivity of the nerves in the foot, the doctor touches the filament to the bottom of the foot.

mononeuropathy (MAH-noh-ne-ROP-uh-thee): *neuropathy* affecting a single nerve.

myocardial (my-oh-KAR-dee-ul) infarction (in-FARK-shun): an interruption in the blood supply to the heart because of narrowed or blocked *blood vessels*. Also called a heart attack.

nateglinide (neh-TEH-glin-ide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose levels* by helping the *pancreas* make more *insulin* right after meals. Belongs to the class of medicines called D-phenylalanine derivatives. (Brand name: Starlix.)

necrobiosis (NEK-roh-by-OH-sis) lipidica (lih-POY-dik-ah) diabeticorum (DY-uh-bet-ih-KOR-um): a skin condition usually on the lower part of the legs. Lesions can be small or extend over a large area. They are usually raised, yellow, and waxy in appearance and often have a purple border.

neovascularization (NEE-oh-VASK-yoo-ler-ih-ZAY-shun): the growth of new, small *blood vessels*. In the *retina*, this may lead to loss of vision or blindness.

nephrologist (neh-FRAH-luh-jist): a doctor who treats people who have *kidney* problems.

nephropathy (neh-FROP-uh-thee): disease of the *kidneys*. *Hyperglycemia* and *hypertension* can damage the kidneys' *glomeruli*. When the kidneys are damaged, *protein* leaks out of the kidneys

into the *urine*. Damaged kidneys can no longer remove waste and extra fluids from the bloodstream.

nerve conduction studies: tests used to measure for nerve damage; one way to diagnose *neuropathy*.

nerve disease: see *neuropathy*.

neurologist (ne-RAH-luh-jist): a doctor who specializes in problems of the nervous system, such as *neuropathy*.

neuropathy (ne-ROP-uh-thee): disease of the nervous system. The three major forms in people with diabetes are *peripheral neuropathy*, *autonomic neuropathy*, and *mononeuropathy*. The most common form is peripheral neuropathy, which affects mainly the legs and feet.

NIDDM: see *noninsulin-dependent diabetes mellitus*.

noninsulin-dependent diabetes mellitus (NIDDM): former term for *type 2 diabetes*.

noninvasive (NON-in-VAY-siv) blood glucose monitoring: measuring *blood glucose* without pricking the finger to obtain a blood sample.

N-O

NPH insulin: an *intermediate-acting insulin*; NPH stands for neutral protamine Hagedorn. On average, NPH insulin starts to lower *blood glucose* within 1 to 2 hours after *injection*. It has its strongest effect 6 to 10 hours after injection but keeps working about 10 hours after injection. Also called N insulin.

nutritionist (noo-TRIH-shuh-nist): a person with training in nutrition; may or may not have specialized training and qualifications. See *dietitian*.

obesity: a condition in which a greater than normal amount of fat is in the body; more severe than *overweight*; having a *body mass index* of 30 or more.

obstetrician (ob-steh-TRIH-shun): a doctor who treats pregnant women and delivers babies.

OGTT: see *oral glucose tolerance test*.

ophthalmologist (AHF-thal-MAH-luh-jist): a medical doctor who diagnoses and treats all eye diseases and eye disorders. Ophthalmologists can also prescribe glasses and contact lenses.



Ophthalmologist

optician (ahp-TI-shun): a health care professional who dispenses glasses and lenses. An optician also makes and fits contact lenses.

optometrist (ahp-TAH-meh-trist): a primary eye care provider who prescribes glasses and contact lenses. Optometrists can diagnose and treat certain eye conditions and diseases.

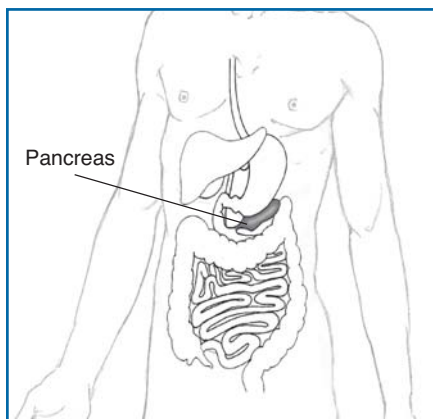
oral glucose tolerance test (OGTT): a test to diagnose *pre-diabetes* and diabetes. The oral glucose tolerance test is given by a health care professional after an overnight fast. A blood sample is taken, then the patient drinks a high-*glucose* beverage. Blood samples are taken at intervals for 2 to 3 hours. Test results are compared with a standard and show how the body uses glucose over time.

oral hypoglycemic (hy-po-gly-SEE-mik) agents: medicines taken by mouth by people with *type 2 diabetes* to keep *blood glucose levels* as close to normal as possible. Classes of oral hypoglycemic agents are *alpha-glucosidase inhibitors*, *biguanides*, *D-phenylalanine derivatives*, *meglitinides*, *sulfonylureas*, and *thiazolidinediones*.

Orinase: see *tolbutamide*.

overweight: an above-normal body weight; having a *body mass index* of 25 to 29.9.

pancreas (PAN-kree-us): an organ that makes *insulin* and *enzymes* for digestion. The pancreas is located behind the lower part of the stomach and is about the size of a hand.



Pancreas

pancreas transplantation: a surgical procedure to take a healthy whole or partial pancreas from a donor and place it into a person with diabetes.

pediatric (pee-dee-AT-rik) endocrinologist (en-doh-krih-NAH-luh-jist): a doctor who treats children who have *endocrine gland* problems such as diabetes.

P

pedorthist (ped-OR-thist): a health care professional who specializes in fitting shoes for people with disabilities or deformities. A pedorthist can custom-make shoes or orthotics (special inserts for shoes).

periodontal (PER-ee-oh-DON-tul) disease: disease of the gums.

periodontist (PER-ee-oh-DON-tist): a dentist who specializes in treating people who have gum diseases.

peripheral (puh-RIF-uh-rul) neuropathy (ne-ROP-uh-thee): nerve damage that affects the feet, legs, or hands. Peripheral neuropathy causes pain, numbness, or a tingling feeling.

peripheral (puh-RIF-uh-rul) vascular (VAS-kyoo-ler) disease (PVD): a disease of the large *blood vessels* of the arms, legs, and feet. PVD may occur when major blood vessels in these areas are blocked and do not receive enough blood. The signs of PVD are aching pains and slow-healing foot sores.

peritoneal dialysis: see *dialysis*.

pharmacist (FAR-mah-sist): a health care professional who prepares and distributes medicine to people. Pharmacists also give information on medicines.



Pharmacist

photocoagulation (FOH-toh-koh-ag-yoo-LAY-shun): a treatment for *diabetic retinopathy*. A strong beam of light (laser) is used to seal off bleeding *blood vessels* in the eye and to burn away extra blood vessels that should not have grown there.

pioglitazone (py-oh-GLIT-uh-zone):

an oral medicine used to treat *type 2 diabetes*. It helps *insulin* take *glucose* from the blood into the cells for energy by making cells more sensitive to insulin. Belongs to the class of medicines called thiazolidinediones. (Brand name: Actos.)

podiatrist (puh-DY-uh-trist): a doctor who treats people who have foot problems. Podiatrists also help people keep their feet healthy by providing regular foot examinations and treatment.

podiatry (puh-DY-uh-tree): the care and treatment of feet.

point system: a meal planning system that uses points to rate the caloric content of foods.

polydipsia (pah-lee-DIP-see-uh): excessive thirst; may be a sign of diabetes.

polyphagia (pah-lee-FAY-jee-ah): excessive hunger; may be a sign of diabetes.

polyuria (pah-lee-YOOR-ee-ah): excessive urination; may be a sign of diabetes.

postprandial (post-PRAN-dee-ul)
blood glucose: the *blood glucose level* taken 1 to 2 hours after eating.

Prandin: see *repaglinide*.

Precose: see *acarbose*.

pre-diabetes: a condition in which *blood glucose levels* are higher than normal but are not high enough for a diagnosis of diabetes. People with pre-diabetes are at increased risk for developing *type 2 diabetes* and for heart disease and *stroke*. Other names for pre-diabetes are *impaired glucose tolerance* and *impaired fasting glucose*.

premixed insulin: a commercially produced combination of two different types of *insulin*. See *50/50 insulin* and *70/30 insulin*.

preprandial (pree-PRAN-dee-ul)
blood glucose: the *blood glucose level* taken before eating.

prevalence: the number of people in a given group or population who are reported to have a disease.

proinsulin (proh-IN-suh-lin):
the substance made first in the *pancreas* and then broken into several pieces to become *insulin*.

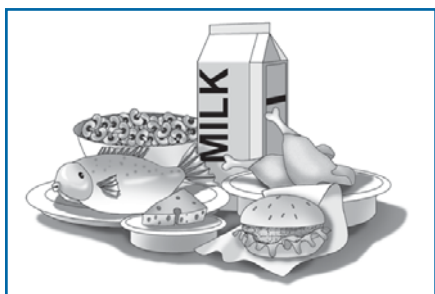
proliferative (pro-LIH-fur-ah-tiv)
retinopathy (REH-tih-NOP-uh-thee): a condition in which fragile new *blood vessels* grow along the *retina* and in the *vitreous humor* of the eye.

P-R

prosthesis (prahs-THÉE-sis):

a man-made substitute for a missing body part such as an arm or a leg.

protein (PRO-teen): 1. One of the three main nutrients in food. Foods that provide protein include meat, poultry, fish, cheese, milk, dairy products, eggs, and dried beans. 2. Proteins are also used in the body for cell structure, *hormones* such as *insulin*, and other functions.



Sources of protein

proteinuria (PRO-tee-NOOR-ee-uh): the presence of *protein* in the *urine*, indicating that the *kidneys* are not working properly.

pump: see *insulin pump*.

rapid-acting insulin: a type of insulin that starts to lower *blood glucose* within 5 to 10 minutes after *injection* and has its strongest effect 30 minutes to 3 hours after injection, depending on the type used. See *aspart insulin* and *lispro insulin*.

rebound hyperglycemia (HY-per-gly-SEE-mee-ah): a swing to a high level of *glucose* in the blood after a low level. See *Somogyi effect*.

receptors: see *insulin receptors*.

Recognized Diabetes Education Programs: *diabetes self-management* education programs that are approved by the American Diabetes Association.

regular insulin: short-acting insulin. On average, regular insulin starts to lower *blood glucose* within 30 minutes after *injection*. It has its strongest effect 2 to 5 hours after injection but keeps working 5 to 8 hours after injection. Also called R insulin.

renal (REE-nal): having to do with the *kidneys*. A renal disease is a disease of the kidneys. Renal failure means the kidneys have stopped working.

renal threshold (THRESH-hold)

of glucose: the *blood glucose* concentration at which the *kidneys* start to excrete glucose into the *urine*.

repaglinide (reh-PAG-lih-nide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* right after meals. Belongs to the class of medicines called meglitinides. (Brand name: Prandin.)

retina (REH-ti-nuh): the light-sensitive layer of tissue that lines the back of the eye.

retinopathy: see *background retinopathy*, *proliferative retinopathy*, and *diabetic retinopathy*.

risk factor: anything that raises the chances of a person developing a disease.

rosiglitazone (rose-ee-GLIH-tuh-zone): an oral medicine used to treat *type 2 diabetes*. It helps *insulin* take *glucose* from the blood into the cells for energy by making cells more sensitive to insulin. Belongs to the class of medicines called thiazolidinediones. (Brand name: Avandia.)

saccharin (SAK-ah-rin): a sweetener with no calories and no nutritional value.

secondary diabetes: a type of diabetes caused by another disease or certain drugs or chemicals.

self-management: in diabetes, the ongoing process of managing diabetes. Includes meal planning, planned physical activity, *blood glucose monitoring*, taking diabetes medicines, handling episodes of illness and of low and high blood glucose, managing diabetes when traveling, and more. The person with diabetes designs his or her own self-management treatment plan in consultation with a variety of health care professionals such as doctors, nurses, *dietitians*, *pharmacists*, and others.

70/30 insulin: *premixed insulin* that is 70 percent *intermediate-acting (NPH) insulin* and 30 percent *short-acting (regular) insulin*.

sharps container: a container for disposal of used needles and *syringes*; often made of hard plastic so that needles cannot poke through.

S

short-acting insulin: a type of insulin that starts to lower **blood glucose** within 30 minutes after **injection** and has its strongest effect 2 to 5 hours after injection. See **regular insulin**.

side effects: the unintended action(s) of a drug.

sliding scale: a set of instructions for adjusting **insulin** on the basis of **blood glucose** test results, meals, or activity levels.

Somogyi (suh-MOH-jee) effect, also called **rebound hyperglycemia:** when the **blood glucose level** swings high following **hypoglycemia**. The Somogyi effect may follow an untreated hypoglycemic episode during the night and is caused by the release of stress **hormones**.

sorbitol (SORE-bih-tall): 1. A **sugar** alcohol (sweetener) with 4 **calories** per **gram**. 2. A substance produced by the body in people with diabetes that can cause damage to the eyes and nerves.

split mixed dose: division of a prescribed daily dose of **insulin** into two or more **injections** given over the course of the day.

starch: another name for **carbohydrate**, one of the three main nutrients in food.

Starlix: see **nateglinide**.

stroke: condition caused by damage to **blood vessels** in the brain; may cause loss of ability to speak or to move parts of the body.

subcutaneous (sub-kyoo-TAY-nee-us) injection: putting a fluid into the tissue under the skin with a needle and **syringe**.

sucralose: a sweetener made from **sugar** but with no **calories** and no nutritional value.

sucrose: a two-part **sugar** made of **glucose** and **fructose**. Known as table sugar or white sugar, it is found naturally in sugar cane and in beets.

sugar: 1. A class of **carbohydrates** with a sweet taste; includes **glucose**, **fructose**, and **sucrose**. 2. A term used to refer to **blood glucose**.

sugar alcohols: sweeteners that produce a smaller rise in *blood glucose* than other *carbohydrates*. Their *calorie* content is about 2 calories per *gram*. Includes erythritol, hydrogenated starch hydrolysates, isomalt, lactitol, maltitol, mannitol, *sorbitol*, and *xylitol*. Also known as polyols (PAH-lee-alls.)

sugar diabetes: former term for *diabetes mellitus*.

sulfonylurea (sul-fah-nil-yoo-REE-ah): a class of oral medicine for *type 2 diabetes* that lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. (Generic names: acetohexamide, chlorpropamide, glimepiride, glipizide, glyburide, tolazamide, tolbutamide.)

syndrome x: see *insulin resistance* and *metabolic syndrome*.

syringe (suh-RINJ): a device used to inject medications or other liquids into body tissues. The syringe for *insulin* has a hollow plastic tube with a plunger inside and a needle on the end.



Syringe

T

team management: a diabetes treatment approach in which medical care is provided by a team of health care professionals including a doctor, a *dietitian*, a nurse, a *diabetes educator*, and others. The team act as advisers to the person with diabetes.

thiazolidinedione (THIGH-uh-ZOH-lih-deen-DYE-own): a class of oral medicine for *type 2 diabetes* that helps *insulin* take *glucose* from the blood into the cells for energy by making cells more sensitive to insulin. (Generic names: pioglitazone and rosiglitazone.)

tight control: see *intensive therapy*.

tolazamide (tohl-AH-zah-mide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to the class of medicines called sulfonylureas. (Brand name: Tolinase.)

tolbutamide (tohl-BYOO-tah-mide): an oral medicine used to treat *type 2 diabetes*. It lowers *blood glucose* by helping the *pancreas* make more *insulin* and by helping the body better use the insulin it makes. Belongs to the class of medicines called sulfonylureas. (Brand name: Orinase.)

Tolinase: see *tolazamide*.

triglyceride (try-GLISS-er-ide): the storage form of *fat* in the body. High triglyceride levels may occur when diabetes is out of control.

type 1 diabetes: a condition characterized by high *blood glucose levels* caused by a total lack of *insulin*. Occurs when the body's *immune system* attacks the insulin-producing *beta cells* in the *pancreas* and destroys them. The pancreas then produces little or no insulin. Type 1 diabetes develops most often in young people but can appear in adults.

type 2 diabetes: a condition characterized by high *blood glucose levels* caused by either a lack of *insulin* or the body's inability to use insulin efficiently. Type 2 diabetes develops most often in middle-aged and older adults but can appear in young people.

type I diabetes: former term for *type 1 diabetes*.

type II diabetes: former term for *type 2 diabetes*.

UKPDS: see *United Kingdom Prospective Diabetes Study*.

ulcer (UL-sur): a deep open sore or break in the skin.

ultralente (UL-truh-LEN-tay)

insulin: *long-acting insulin*. On average, ultralente insulin starts to lower *blood glucose* within 4 to 6 hours after *injection*. It has its strongest effect 10 to 18 hours after injection but keeps working 24 to 28 hours after injection. Also called U insulin.

unit of insulin: the basic measure of *insulin*. U-100 insulin means 100 units of insulin per milliliter (mL) or cubic centimeter (cc) of solution. Most insulin made today in the United States is U-100.

United Kingdom Prospective

Diabetes Study (UKPDS): a study in England, conducted from 1977 to 1997 in people with *type 2 diabetes*. The study showed that if people lowered their *blood glucose*, they lowered their risk of eye disease and *kidney* damage. In addition, those with type 2 diabetes and *hypertension* who lowered their *blood pressure* also reduced their risk of *stroke*, eye damage, and death from long-term *complications*.

U

U-100: see *unit of insulin*.

urea (yoo-REE-uh): a waste product found in the blood that results from the normal breakdown of *protein* in the *liver*. Urea is normally removed from the blood by the *kidneys* and then excreted in the *urine*.

uremia (yoo-REE-mee-ah): the illness associated with the buildup of *urea* in the blood because the *kidneys* are not working effectively. Symptoms include nausea, vomiting, loss of appetite, weakness, and mental confusion.

urine: the liquid waste product filtered from the blood by the *kidneys*, stored in the bladder, and expelled from the body by the act of urinating.

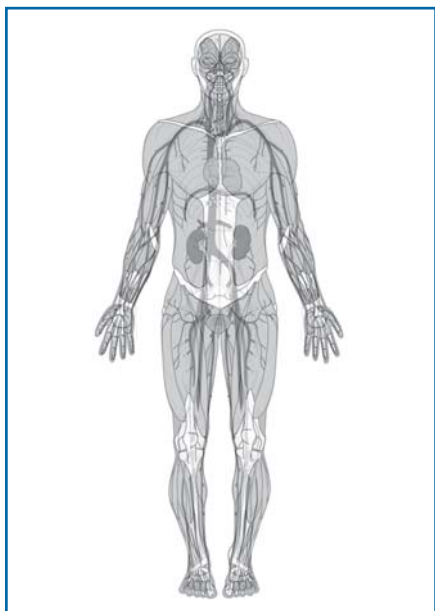
urine testing: also called urinalysis; a test of a urine sample to diagnose diseases of the urinary system and other body systems. In people with diabetes, a doctor may check for

1. *Glucose*, a sign of diabetes or other diseases.
2. *Protein*, a sign of kidney damage, or *nephropathy*. (Also see *albuminuria*.)
3. White blood cells, a sign of urinary tract infection.
4. *Ketones*, a sign of *diabetic ketoacidosis* or other conditions.

Urine may also be checked for signs of bleeding. Some tests use a single urine sample. For others, 24-hour collection may be needed. And sometimes a sample is “cultured” to see exactly what type of bacteria grows.

urologist (yoo-RAH-luh-jist): a doctor who treats people who have urinary tract problems. A urologist also cares for men who have problems with their genital organs, such as *impotence*.

vascular (VAS-kyoo-ler): relating to the body's *blood vessels*.



Vascular system

vein: a *blood vessel* that carries blood to the heart.

very-long-acting insulin: a type of insulin that starts to lower *blood glucose* within 1 hour after *injection* and keeps working evenly for 24 hours after injection. See *glargine insulin*.

very-low-density lipoprotein (VLDL) cholesterol: a form of *cholesterol* in the blood; high levels may be related to *cardio-vascular disease*.

vitrectomy (vih-TREK-tuh-mee): surgery to restore sight in which the surgeon removes the cloudy *vitreous humor* in the eye and replaces it with a salt solution.

vitreous (VIH-tree-us) humor: the clear gel that lies behind the eye's lens and in front of the *retina*.

VLDL cholesterol: see *very-low-density lipoprotein cholesterol*.

void: to urinate; to empty the bladder.

wound care: steps taken to ensure that a wound such as a foot *ulcer* heals correctly. People with diabetes need to take special precautions so wounds do not become infected.

xylitol (ZY-lih-tall): a *carbohydrate*-based sweetener found in plants and used as a substitute for *sugar*; provides *calories*. Found in some mints and chewing gum.

National Diabetes Information Clearinghouse

1 Information Way
Bethesda, MD 20892-3560
Phone: 1-800-860-8747
Fax: 703-738-4929
Email: ndic@info.niddk.nih.gov
Internet: www.diabetes.niddk.nih.gov

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